REMARKS

Present Status of Patent Application

Claims 10-15 remain pending of which claims 10-15 have been amended in to correct a minor typographical error. It is believed that no new matter adds by way of amendments to claims or otherwise to the application.

For at least for the following reasons, Applicant respectfully submits that claims 10-15 patently define over the prior art of record. Reconsideration is respectfully requested.

Objection to Claims

The Office Action objected to claims 10-15 because of the following informalities and/or defects: In claims 10 and 13, the term "said first and second trench" should read as –first and second trenches. Appropriate correction is required.

In response thereto, Applicants have amended claims 10 and 13. After entry of the above amendments to claims 10-15, it is believed that the above objections to claims 10-15 can be overcome. Reconsideration is respectfully requested.

Response to Claims Rejections under 35 USC§103

The Office Action rejected claims 10-15 under 35 U.S.C. 103(a), as being unpatentable over Lancaster et al. (US-4,835,584, hereinafter Lancaster) in view of Lee et al. (US-4,685,196, hereinafter Lee) and or Solomon et al. (US-5,108,938, hereinafter Solomon).

Applicants respectfully submit that independent claims 10 and 13, as amended, are allowable for at least the reason that Lancaster substantially fails to teach, suggest or disclose every features of the claimed invention. More specifically, Lancaster fails to teach, suggest or disclose a MOSFET device comprising at least "a gate electrode comprising a first conductive vertical portion, a second conductive vertical portion and a horizontal conductive portion, wherein the conductive first vertical portion is embedded inside the first trench over said thin insulating layer such that said insulating layer and said first conductive vertical portion within the first trench completely fills the first trench, the second conductive vertical portion is embedded inside the second trench over said thin insulating layer such that said insulating layer and said second conductive vertical portion within the second trench completely fills the second trench, and the horizontal conductive portion is disposed over the substrate and connects said first and second conductive vertical portions together, as required by the amended claims 10 and 13". The advantage of the above structure is that at least the above gate structure can be fabricated from a more simplified method. Further, the effective width of the gate can be effectively increased by 2nt while at the same time the lateral surface occupation of the gate can also be effectively reduced and thereby allowing increase in the integration of the semiconductor device.

To the contrary, **Lancaster** substantially discloses (please see FIG. 5H-5J and related disclosure) a semiconductor structure comprising a plurality of trenches formed side by side into

the substrate, an insulating layer (57) formed conformal to the trenches (56), a plurality of gate electrodes (58) formed inside the trenches (56). The dielectric material (70) is deposited over the vertical portions of the gate electrode (58) which are embedded within the trenches (56). In other words, each gate electrode 58 comprises two vertical portions and a horizontal portion connecting to the two vertical portion embedded into a single trench to increase the gate width. Whereas, the (single) gate electrode of the claimed invention comprises a first conductive portion embedded in the first trench, a second conductive vertical portion embedded inside the second trench and a horizontal conductive portion connecting the first and second conductive vertical portions, as claimed in claims 10 and 13. Thus, the gate structure of the claimed invention is substantially simple and different compared to that of **Lancaster**, and the gate structure of the claimed invention is also comparatively easy to fabricate and hence cost effective. Thus, Lancaster cannot possibly meet the claimed invention as claimed in claims 10 and 13 in this regard.

Furthermore, because both Lee and Solomon substantially teach or disclose the gate electrode (25, 57) is comprised of a single vertical portion embedded in a single trench, which conflicts with that of **Lancaster's** teachings, and therefore Lee and Solomon cannot possibly motivate one skilled in the art to modify the gate structure of Lancaster.

Thus, Applicants respectfully submit that **Lancaster**, **Lee** and **Solomon** substantially fail to teach, suggest or hint at least the (single) gate electrode of the claimed invention comprises a first conductive portion embedded in the first trench, a second conductive vertical portion embedded inside the second trench and a horizontal conductive portion connecting the first and second conductive vertical portions, as claimed in claims 10 and 13. Thus, Applicants

respectfully submit that **Lancaster**, **Lee** and **Solomon** either alone or in combination cannot possibly to teach, suggest or disclose every features of the claimed invention as claimed in claims 10 and 13 in this regard.

Claims 11-12 and claims 14-15, which directly or indirectly depend from the independent claims 10 and 13, are also patentable over prior arts of record at least because of their dependency from an allowable base claim.

For at least the foregoing reasons, Applicants respectfully submit Claims 10-15 patently define over Lancaster, Lee and Solomon. Reconsideration is respectfully requested.

CONCLUSION

For at least the foregoing reasons, it is believed that all pending claims 10-15 are in proper condition for allowance. If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is cordially invited to telephone the undersigned counsel to arrange for such a conference.

Respectfully submitted,
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